

Student energy awareness scheme – University of East Anglia

For estate and finance departments and student union representatives



- Electricity consumption reduced by 8%
- Students rewarded with £1550 as a share of the savings
- Further savings will benefit students in future years
- All savings achieved through good housekeeping practices



ENERGY EFFICIENCY

**BEST PRACTICE
PROGRAMME**

HOST ORGANISATION



'This scheme enabled us, the UEA students, to demonstrate our commitment to energy efficiency and the environment. Through it we produced real savings and achieved a financial reward for ourselves and the University. Some of this money is now being put into making our union more sustainable and environmentally friendly.'

MAGGIE CHARNLEY
Student Union Environment Officer

Maggie is a second year environmental sciences student. In addition to studying for a degree, her one-year election as the student union's Environment Officer (EO) gives her responsibility for running all aspects of the student union's environmental programme. This includes: identifying for the student union (SU) sources of recycled paper, environmentally friendly toner and so on; arranging recycling centres; and raising environmental awareness in both the student and wider population.

Maggie ran the shared savings scheme on behalf of the students, from which both students and the University as a whole directly benefit.



'The UEA is pleased to consider itself as one of the country's foremost centres of excellence in environmental education and research. We are always keen to find new ways in which we can help to improve the world we live in and see energy conservation as a key part of this. This project illustrates the successful results that have been gained by working in collaboration with our students.'

MEL PASCOE
University Energy Manager

Mel was appointed in 1996 and is the University's first full-time energy manager. He has responsibility for all aspects of energy management at the University, which includes identifying projects where the students and University managers can work together.

Mel identified the potential for running a shared savings scheme in the student residences and was responsible for starting it off and overseeing it on behalf of the University.

INTRODUCTION

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The national annual energy bill for university student residences is estimated at £35 million. This represents around 25% of the overall energy use of higher and further education establishments (HFEs) and results in carbon dioxide (CO₂) emissions equivalent to 135 000 tonnes of carbon per year.

The energy is used to provide basic services such as heating, lighting, cooking and power for personal computers (PCs), stereos etc. The UK's 212 000 residential students require these services, but opportunities do exist for reducing the amount of energy consumed.

Many establishments have resorted to expensive technical fixes, such as the relocation of heating and lighting controls, the installation of

occupancy sensors and the use of miniature circuit breakers (MCBs) to limit the power available to rooms. These can undoubtedly go a long way to reducing wastage. They can also present a challenge when the conditions are not those required by the students. This, along with the tendency to use lights and appliances when not needed, and to open windows to control the temperature, means that there will always be a substantial proportion of energy usage that is within the students' direct control.

This Case Study looks at an initial one-year scheme at the University of East Anglia (UEA) where, by running their own energy efficiency campaign in student residences, the students have taken control of their energy use and achieved significant savings.

BACKGROUND

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Following its involvement in a National Union of Students (NUS) forum on the environment, the student union (SU) at UEA committed itself to the Planet Pledge initiative (see box). This provides a set of environmental goals for each SU to aim at, and requires each of them to develop an ecological policy and to be pro-active in achieving an environmentally friendly union.

The students and managers of the UEA held a conference to consider ways of working together to enhance the University's environmental performance in a cost-effective way. The outcome provided the basis of a declaration on the 'Greening of the UEA'.

The University subsequently appointed a full-time energy manager, Mel Pascoe. One of his many tasks was to identify opportunities for the students to run their own energy-saving schemes. An obvious area

to address was the halls of residence which had an annual energy bill of £500 000 and where, other than corridor lighting and heating regimes, the students had complete control over the energy use.

The energy manager developed a proposal for a scheme in which the students would organise and run an energy awareness campaign to promote good housekeeping practices in the residences and in which they would share in the resultant energy cost savings.

What is the Planet Pledge initiative?

It's about getting student unions to commit themselves to putting ecological thinking at the heart of their activities. Unions that sign the Planet Pledge are then committed to setting up a group to develop a comprehensive ecological policy and plan ways of achieving a sustainable student union – if they haven't done so already.



THE STUDENT AWARENESS CAMPAIGN

In order for payments to be made, the scheme required approval by the director of residences and the University's registrar. Once this was achieved, the energy manager and the student union Environment Officer (EO) established guidelines for the scheme.

- The scheme would be run over a trial period of one academic year.
- For ease of monitoring and apportionment of use, the trial would only cover electricity consumption.
- Students, via the SU, would receive 25% of all energy cost savings achieved through their own endeavours up to a maximum amount of £5000 and there would be no restrictions on how the money could be spent. The remainder of the money would be held in the residence account and used to reduce the accommodation bills in future years.
- The scheme would only cover student residences in which the energy costs were a fixed and inclusive element of the rent.
- A base year of energy consumption against which savings would be measured was agreed by the students and the energy manager.
- Monitoring of energy consumption and calculation of savings achieved would be carried out by the energy manager each month and verified by the students.
- The SU would be wholly responsible for planning, promoting and running the awareness campaign and also for any costs involved.

THE STUDENT AWARENESS CAMPAIGN

The EO decided to adopt two approaches to achieve the campaign's aims: to target the students in residences directly, and to support this by raising the general awareness of all students within the University.

Targeting student residences

Residents were provided with specific details of the scheme together with energy-saving tips, which basically remind them to turn things off when not required. The routes used to disseminate this information were as follows.

- **Doordrops.** Pamphlets outlining the scheme and giving specific energy-saving tips were distributed to every resident during the first month of term. These also included return slips for suggestions on how the cash-back could best be spent.
- **Posters.** A series of posters was produced for display in the communal areas of each residence. Standard energy-saving posters were considered inappropriate for the student audience and specific targeted ones were created. Posters were updated regularly (approximately every two months) to keep the message fresh.



Figure 1 Typical student residence

The material was distributed by student volunteers from the University's Society for Environmental Action (SEA) and by cleaning staff during their routine visits to the halls of residence.

The members of the SEA also made a point of talking to residents to explain the campaign and its benefits.

GENERAL AWARENESS

General awareness

Energy awareness was increased in the whole student population as follows.

- **Newspaper article.** A full-page article was placed in the student newspaper at the start of the academic year. This outlined the University's commitment to energy efficiency, provided details of the scheme and gave contacts for further advice.
- **Energy tips bookmarks.** These were distributed to students from the library and the campus bookshop.
- **Mobile energy centre.** A mobile energy centre was invited to the University during freshers' week and this provided advice on all aspects of energy saving.



Figure 2 Student receiving a bookmark



TARGETING RESIDENCES

TARGETING RESIDENCES

The seven campus residences included in this scheme ranged in age from 1960s concrete and glass structures to modern 1990s developments. The total floor area of the halls of residence is 62 210 m² and provides just over 20 m² per student.

A survey of the buildings identified that much of the electricity used in residences was for corridor lighting which is outside the direct control of the students. These lights are controlled either by key switches, central master switches or occupancy sensors, and in many instances may remain on throughout the day. It was estimated that these lights accounted for about 40% of the total electricity used in the residences, thereby leaving 2 175 000 kWh under direct student control.

Campaign costs

No additional budget was allocated for the campaign. The costs incurred in producing, copying and distributing the promotional literature were minimal and absorbed within the Environment Officer's existing budget.

Costs were kept low by using information which is freely available from BRECSU and the Energy Saving Trust (EST), produced on behalf of the Department of the Environment, Transport and the Regions (DETR). See back page for Best Practice publications and address details.

advice

Advice and information included the following.

- You would need 200 acres of trees to use up the CO₂ produced by UEA every year.
- Turn off lights, stereos, television etc, when leaving rooms.
- Don't leave TVs and PCs on standby when not in use.
- Don't use lights when daylight is adequate.
- Turn radiators or thermostats down – a 1°C reduction in room temperature can save 10% of fuel bills.
- Don't use electric heaters; these can be very expensive to run.
- Don't leave hot taps running.
- Plan your cooking:
 - don't use the oven for small items, as this is wasteful
 - don't overfill saucepans; this uses more energy
 - cut food into small pieces so that it will cook quicker.

RESULTS

RESULTS

Electricity consumption data for the base year (academic year 1995/96), was derived from utility bills and the estates department's own meter readings. This showed that the total electricity consumption for the seven campus residences was 3 625 000 kWh. This equates to 58 kWh/m², which compares favourably with the DETR's Energy Efficiency Best Practice programme benchmark of 85 kWh/m².

The monitoring results showed that, although the electricity use of the residences was already very low, the 3058 residential students have achieved annual energy savings of 168 600 kWh through simple good housekeeping practices in the areas where they have direct control. The saving is equivalent to about 8% of controllable electricity usage and provided a reduction in CO₂ emissions equivalent to 32 tonnes of carbon. If similar savings to those of UEA could be replicated across the whole higher and further education sector, then annual CO₂ production would be reduced by the equivalent of 2230 tonnes of carbon.

The cost saving achieved through the energy awareness campaign was £6200 of which 25% was returned to the students, via the SU, for spending as they pleased (table 1).



	Built (year)	Energy saved (kWh)	% saved	CO ₂ emissions (expressed as kg carbon)	Saved energy costs (£)
Constable Terrace	90s	58 700	11.7	11 209	2120
Nelson Court	90s	37 700	6.5	7200	1370
Norfolk Terrace	60s	10 000	5.8	1909	370
Suffolk Terrace	60s	13 750	10.9	2618	500
Village	90s	22 450	5.5	4282	900
Waveney Terrace	60s	19 900	5.8	3791	720
Wolfson & Orwell	60s	6100	14.6	1173	220
Total	–	168 600	7.8	32 182	6200

Table 1 Savings achieved at residences

USING THE SAVINGS

USING THE SAVINGS

As part of the promotional campaign, the students were asked for suggestions on how the money could be spent. Among the most popular suggestions were:

- buying solar panels for the SU building
- improving safety through purchasing street lights for an unlit area of the campus
- using it to pay for a concert
- providing free beer
- purchasing leisure equipment such as bar football or pool tables
- purchasing sports equipment for use by student organisations.

The student union decided to re-invest the savings in the Planet Pledge initiative to promote further energy and environmental projects.

LESSONS LEARNT

The lessons learnt during the course of this scheme may also help other universities to implement a similar initiative.

- Early planning is essential. The scheme was conceived at the start of the academic year. Consequently, the campaign did not start until almost the end of the first term and this severely restricted the savings achievable.
- Don't restrict the utilities covered by the scheme. While the awareness campaign covered all fuels, the savings were restricted by not including gas or district heat due to the lack of suitable metering. This means that the students were not rewarded for the savings they achieved in space heating and domestic hot water usage, which represents about 50% of residences total energy bill.
- Make sure that the 'rewards' of energy savings are shared, and encourage feedback from all residents on how the saving is to be used.
- Establish a budget. It will not only fund the campaign but also signify commitment.
- Maintain momentum. Don't let the campaign wane. You can keep things happening by adopting advice similar to that contained in DETR's action pack 'Running an awareness campaign' (see back page for details).
- Ensure that the roles of individuals involved in the campaign are known, understood and publicised (see box).

ROLES OF KEY PEOPLE INVOLVED IN THE UEA CAMPAIGN

Union Environment Officer

- Provide initial drive for the scheme.
- Liase with others to determine guidelines and the level of reward available.

Union Campaign Officer

- Develop the campaign programme and awareness literature etc.
- Ensure that the campaign maintains momentum.
- Check meter readings and savings achieved.
- Provide feedback to EO and student union.

Energy Manager

- Determine what can realistically be monitored and assessed.
- Develop guidelines with EO.
- Oversee monitoring and assessment of savings.
- Provide base year figures.
- Advise on any changes in installed equipment which have taken place or are due to take place which may effect energy use.

Director of Residences

- Give approval for the scheme to be held in residences.
- Provide support both morally and in making staff such as cleaners available to help distribute information.

Registrar

- Provide overall approval for payment of shared savings.
- Assess the benefits of the scheme to the university's image.



Figure 3 Members of the University's Society for Environment Action who were actively involved in promoting the campaign

FURTHER INFORMATION

CONCLUSIONS

Student initiatives in energy efficiency are both viable and cost-effective. This Case Study has shown how significant savings can be achieved at little cost. Each year a fresh batch of students moves into the campus residences. Therefore, in order to continue to achieve savings, the promotional campaign will need to start afresh. Although the base year should remain the same, the new students will benefit to some degree from the previous year's achievement. In addition, the energy manager will have implemented measures as a consequence of the previous year's campaign.

A residential student awareness campaign should be part of a more general approach to improving energy use. This should include raising the importance of energy awareness of students and staff throughout the university along with investment in energy saving technology such as low energy lights and improved heating controls.

FURTHER INFORMATION

Energy Saving Trust (EST)

The EST produces a range of material on behalf of the DETR. Details are available from:

Energy Saving Trust
11-12 Buckingham Gate
London SW1E 6LB
Tel 0171 931 8401. Fax 0171 931 8548

DETR ENERGY EFFICIENCY BEST PRACTICE PROGRAMME PUBLICATIONS

The following Best Practice programme publications are available from BRECSU Enquiries Bureau. Contact details are given below.

Running an awareness campaign pack

Energy Consumption Guide

- 16 Saving energy in schools. The 'school energy manager's' guide to energy efficiency
- 54 Energy efficiency in further and higher education – cost-effective low energy buildings

Good Practice Guides

- 29 Good housekeeping in schools. A guide for school staff, governors and pupils
- 33 Energy efficiency in offices. Understanding energy use in your office
- 39 Managing energy in schools. A guide for headteachers and governors
- 40 Saving energy in schools. For school energy managers
- 45 Managing energy in schools. A guide for school caretakers
- 57 Conducting an energy walk-round. A guide for school energy managers, headteachers and governors
- 133 Energy efficiency in the workplace – a guide for managers and staff
- 172 Marketing energy efficiency – raising staff awareness
- 199 Energy efficient lighting – a guide for installers
- 232 Educated energy. Good housekeeping in further and higher education buildings.

The Government's Energy Efficiency Best Practice programme provides impartial, authoritative information on energy efficiency techniques and technologies in industry and buildings. This information is disseminated through publications, videos and software, together with seminars, workshops and other events. Publications within the Best Practice programme are shown opposite.

Visit the website at www.energy-efficiency.gov.uk

For further information on:

Buildings-related projects contact:
Enquiries Bureau

BRECSU

BRE
Garston, Watford WD25 9XX
Tel 01923 664258
Fax 01923 664787
E-mail brecsuenq@bre.co.uk

Industrial projects contact:
Energy Efficiency Enquiries Bureau

ETSU

Harwell, Oxfordshire
OX11 0RA
Tel 01235 436747
Fax 01235 433066
E-mail etsuenq@aeat.co.uk

Energy Consumption Guides: compare energy use in specific processes, operations, plant and building types.

Good Practice: promotes proven energy-efficient techniques through Guides and Case Studies.

New Practice: monitors first commercial applications of new energy efficiency measures.

Future Practice: reports on joint R&D ventures into new energy efficiency measures.

General Information: describes concepts and approaches yet to be fully established as good practice.

Fuel Efficiency Booklets: give detailed information on specific technologies and techniques.

Introduction to Energy Efficiency: helps new energy managers understand the use and costs of heating, lighting, etc.

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